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(54) Title: CYCLONIC EVAPORATOR

(57) Abstract

A method and apparatus for separating the components of a feed material prior to or simultaneously with at least partially vaporising one of the components is described. The apparatus comprises at least one inlet (8) for admitting the feed material (10) containing the two components to the apparatus (2) wherein a device for introducing a first movement to the feed material is located, such as, for example, an in-line swirl generator (14), which imparts a swirling movement to the feed material to partially separate the components into two swirling flows. The partially separated material on emerging from the in-line swirl generator (14) is in an evaporation tube (20) in which the more volatile component is vaporised to further assist in separating the two components into a liquid component and a gaseous or vapour component. The liquid component and the vapour phase are discharged from the apparatus in two streams through the same outlet (36). Modifications of the method and apparatus include (i) having multiple evaporation tubes (20), each optionally provided with its own in-line swirl generator to facilitate better distribution and separation of the feed material, and (ii) having a reject nozzle (40) and reject conduit (42) located within the generator for allowing passage of vapour or gas through the in-line swirl generator (14) when there is an intermediate flow formed in the generator (14) and conveyed to the evaporation tube (20). The method and apparatus of this application are used as a pre-treatment in an overall separation plant.

